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ABSTRACT

This collection of activities, experiences, and resources focuses on the man-made environment. The activities and resources were compiled to facilitate a program based upon the teacher's and student's own living experiences in their own environment. The goals of the program are to develop the individual's awareness of his environment and subsequently his understanding of it and to instill confidence in his ability to judge the environment, hence enabling him to control and change it. An introduction, suggested activities, a collection of teaching experiences, an introductory list of resources, and a recommended library are included. The introduction contains a description of the program, concepts and implementation strategies. The activities are directed toward the discovery of the world as a purpose environment and include measuring, photography, and discussion. The collection of experiences is ideas and activities which evolved while implementing the program. A list of resources, including audio-visual aids, maps, newspapers, periodicals and books, plus a recommended library, complete the booklet. (Author/TK)

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A BRIEF DESCRIPTION OF THE GROUP FOR ENVIRONMENTAL EDUCATION ITS GOALS, ACTIVITIES AND PROGRESS

In 1966 involvement in a joint project of the Philadelphia Chapter of the AIA and the Philadelphia School District, and a growing professional concern with the need for educational programs in the man-made environment, led to the formation of the Group for Environmental Education.

We saw our conceptual goals as developing the individual's awareness of his environment and subsequently his understanding of it, and as instilling confidence in his judgements of the environment, hence enabling him to control and change it.

During these past seven years we have pursued these goals in two relevant directions: teacher training and publications on the man-made environment. Today we have expanded our work beyond the Philadelphia area and our materials are being used nationally and, with the publication of the French edition of Our Man Made Environment Book 7, internationally. Teachers in subject areas including social studies, science, art, math, English and home economics are using our materials from primary through college levels. Teacher training workshops have introduced teachers to the use of an environmental format and have supported their continuing work. A recent dissemination grant from the Office of Environmental Education has enabled GEE! to extend this aspect of its interests to a "paper workshop" providing a forum for the ideas and activities of teachers around the country. Financial support from the AIA, the Brunner Foundation, the Fels Foundation, the Heinz Foundation, the Kaufmann Foundation, the Seybert Institution, the National Endowment for the Arts and Educational Facilities Laboratories has allowed GEE! to pursue both its teacher training and publishing activities.

Today the Group is composed of interested architects, planners, educators, and media specialists and can draw upon the knowledge and experience of teachers and program development specialists who have worked with the idea firsthand. The Group's long-range goals include continued development of new resource materials together with an ongoing search for new and more effective ways of reaching both teachers and school administrators.

Alan Levy

Alan Levy, President
Group for Environmental Education Inc.

October 1972

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AN INTRODUCTION TO A PROGRAM IN OUR MAN-MADE ENVIRONMENT

What is this program - Our Man-Made Environment - all about?
or, to take the easier path - what isn't it?

It isn't a technical complexity

It isn't a book or a curricula

It isn't a clearly established body of material

It isn't a Science program or Social Studies program or Art or English or Math program

It isn't a lower school, middle school or high school program

It isn't an expensive program or a controversial program

It isn't an open classroom, traditional classroom, laboratory school or free school

What is it then?

A program built upon the teachers' and students' own living experiences in their own environment - their home, school, neighborhood and city.

A program concentrating on the built environment - the man-made world in which we all spend most of our lives.

A program aimed at long-range goals for developing a society equipped and interested in having some control over the world they live in.

A program which can unite different subjects or serve one at a time.

A program which begins at any age and goes on throughout one's life.

A program which demonstrates the creative skills of a teacher in any classroom, in any school, within any educational philosophy.

It is above anything else a new perspective into the familiar, a new attitude about man and his world - the why, the how, and the who for.

It is about one component of our total environment - the man-made physical environment - which offers a relevant lead into the other aspects of our surroundings - the economic, social, psychological, natural, etc.

There are no pretensions about it's relative importance - only a belief in its immediacy and thus its potential as a learning experience.

All that is asked of the teacher and eventually of the students is that they look around them and through investigation, questioning and direct experience allow themselves to discover the many lessons to be learned. Then through problem solving, both real and hypothetical, discover the ways to decide what must happen and how to make it happen.

If you're with me up to now let's look at the specific ways the program can be initiated and carried on.

What are some of the underlying concepts which provide the basis for this free and unstructured experience?

The environment in which all of us spend the great percentage of our lives is man-made. Man is responsible for it. He has built it or directed it be built or directed that the land remain undeveloped.

The built environment is a broad and all encompassing sphere. It includes not only the rooms and buildings we live and work in but the spaces out of doors; the parks playgrounds farms and vacant lots; the streets and highways we move on; the cars and buses we move in; the pipes and sewers under our streets and the wires over our heads.

The built environment begins with the things we know best. It is made up of the familiar, close to home, experiences and only after we understand these can we expect to understand the less familiar - the "important" buildings downtown, the national monuments, the historic buildings, the cities of the past.

And a very important concept:

That the whole man-made world - all of it in its richness and complexity, past, present and future, immediate and unfamiliar - is, has, and will be built for one purpose, and one purpose only, - To fulfill the needs of man. To fulfill man's social, biological, spiritual and psychological needs.

That man determines what he builds and in turn is shaped by the world he builds.

That, despite the developments of time, new technology, and the expansion of his potentiality - man continues to build primarily for shelter. Shelter from the elements, from the eyes of outsiders. Shelter for his many complex activities, private and public.

Man is the measure of the built environment. His size, his need for light and air, for warmth, for stairs to climb, for privacy and community, for getting from place to place, determine the form of his world.

And another very important concept:

That man, alone or as a community, is the final judge of whether his environment fulfills his needs. He alone can determine his life style and his priorities. The professional - the architect, engineer or planner - and public official have the job of implementing these visions, not dictating their program.

And another

That our man-made surroundings are always changing and will forever change. Without this change this program would be a useless history lesson but because of it a study of our environment is critical if we are going to have anything to say about what it becomes.

And lastly

That we must forever be in search of new alternatives, expanding our limited choices so that we may find solutions which fit our varied needs and values with less unsuitable compromises. We must develop a knowledge beyond our immediate experiences and encourage the growth of our aspurations.

How can these concepts be built into the classroom?

Experience has shown that there are two or three basic kinds of approach to the subject in the most general terms.

1. Observations, reflections and discoveries in the immediate world around us. Seeing and questioning our environment. Recording its patterns, the use-user relationships, the quality, the needs, the changes visable. Almost all work in the beginning revolves about observation and in later, more complex problem solving, observation remains the basic means of relating the real to the hypothetical, the basic means of developing meaningful data for plans and solutions.

The things to be observed, studied, encompass everything near at hand and "out-there." The perspective from which the observations are made can be social, scientific, aesthetic, built upon feelings or raw data. The medium used can be anything available - written word, oral reports, photographs, film, tape, interviews, maps or anything else. The paper included in the Supporting Resources under the Title of "Discovering the Purpose of Our Man-Made Environment: Some Suggested Classroom Activities" gives a concrete example of the variety of media approaches to a single concept.

In a recent workshop a team of science teachers built their observation activities about the comparison of light and color in nature and the built environment.

In an earlier experience, an English teacher used the theater as as expression of a micro-environment and its communicative potential.

A Social Studies teacher used mapping and interviewing as a means to learning about an area - discovering the visible and invisible realities of a particular environment.

The variations are endless - there is no subject into which the process cannot be incorporated.

As to age level, the same flexibility is inherent. The differences are only in the degrees of complexity. For a seventh grader interviewing can be an illuminating experience while walking trips and visits to local businesses and institutions offers an equally rich potential for first and second graders. See "Community Resources for the Durham Child Development Center" a program written for K - 4.

The most difficult thing to overcome is the fear of the obvious, the simple, the immediate. Reflect on the child's experiences in any other subject. It begins in the earliest years and continues to build throughout his school life. Environmental education, despite its omni-presence, has played no part in most children's learning. Thus, no matter where you begin, you have to start at the beginning. You have to see the obvious truths all around you, the obvious relationships, the demonstration of basic concepts.

The worst thing to do is to plunge into complexity without first building a base of personal understanding. Fortunately such a basic knowledge can be easily developed by simply reaching out and opening our eyes.

2. Theoretical Problem Solving. A number of programs are built around a theoretical problem - a new town, neighborhood, a playground or school. The problem gives direction to the observation activities and helps motivate the class. It enables the teacher and child to begin establishing goals and priorities without the encumbrance

of the complicated real world. It allows for a more free set of choices beyond the limitations we all feel. It also enables a teacher to quietly direct the program through and around specific concepts.

In Philadelphia in 1968 a young teacher built an entire program about the building of a model city. The program entitled "The Model City Laboratory" had three teams of students working with "lego" blocks (a plastic modular building toy) building, changing, rebuilding a city during one full semester. To learn what they had done wrong, to develop new ideas, the teacher K. Lieberman used a multi-media resource center built into the room divided into different subject areas. The accomplishments of this class in a difficult city school situation were most exciting. Reading, mathematics, questioning, group dynamics - all come into play.

Many teachers begin or develop toward a theoretical problem or problems as their base develops. But many others do not and there is no reason to assume one approach better than another - particularly during what is for both teacher and students the first steps in a new experience.

3. Real World Problems. Eventually every teacher is drawn toward the problems confronting the community. There can be no doubt that learning to work with real life problems and alternatives is the final goal.

There is, however, a great tendency to plunge into these problems without an adequate base. The built-in complexities , the limited alternatives, the real constraints can be demoralizing as a first step. It can keep the student from learning something about why and what it is all about, can keep him from setting his goals first, before confronting the need to compromise.

One way often explored is to set up a program with a real world problem as the central theme. Then, carefully and slowly, using direct observations and well prepared theoretical problems, the class works toward a solution built upon a growing understanding.

Care must be exercised always not to take on too large a real world problem. Tackling Urban Renewal is a mammoth task. It would be better to zero in on some specific aspect of a larger program - new housing, recreation needs, relocation, etc.

As it should be clear by now, there is no one way to approach the subject and in that lies the program's real strength. Each teacher and each class can follow its own interests, capabilities, respond to their own specific environment - its form and its prob ems.

Each teacher can develop the kinds of classroom activities they want. They must develop the confidence in their own creative abilities. A reading of other teachers experiences included in the supporting resources should illustrate some of the ideas of their fellow educators.

Teachers can develop the structure or non-structure they need. They can simply employ a list of headings for different periods or construct a theoretical problem or group of problems about which the activities are developed. Or they can build an action-oriented program about some local problem (being careful to do the necessary prep aration and setting reasonable limits on the complexities).

Environmental education means just that and no universal program exists or ever will be developed to respond adequately to the teachers and classes own surroundings. Make use of it, see it, experience it, measure and count it, question it, plan to change it.

Perhaps the last thing we discuss should be the question of evaluation - what will the child know after that he didn't know before?

The answers can only be partial, not just for the lack of data but because much of the results are unmeasurable (at least in terms I understand). There have been many instances where demonstrable results grew from environmental studies. Better scores in map reading, higher motivation, a new sense of aspiration.

But the real results, the growing capability and self-confidence to handle our environment - the sense of control over our surroundings - cannot be tested year by year. Particularly where these experiences are so often treated as one-time programs without continuity or development. The only test will come in time when these children face the problems their adults are having such poor success in handling.

Does that make the program that less positive? Not for us and hundreds of teachers and children who seem to sense the value of the experiences such a program offers. Well motivated classes, creative teaching experiences and the ease with which it can be handled in so many different situations has created its own group of devoted educational pioneers.

We only hope that the little material we have to offer as a resource will be enough to encourage new teachers to begin and will prove of some real help in helping them get started.

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DISCOVERING THE PURPOSE IN OUR MAN-MADE ENVIRONMENT
SOME SUGGESTED CLASSROOM ACTIVITIES

In the Fall and Winter of 1969-70 the Group for Environmental Education served in an advisory capacity to a program in Environmental Education being developed by WKBH in Boston, Massachusetts. The following brief paper was written as an illustration of how a specific concept - any concept - could be developed into classroom activities. It also provided an opportunity to stress one concept which has always seemed most important to the members of GEE! - The purpose in our Man-Made Environment.

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Discovering the Purpose in Our Man-Made Environment
Some Suggested Classroom Activities

The whole purpose behind understanding our cities and towns, homes, and schools is to help us learn how to change them, make them more like the kind of places we want to live in, go to school in.

The whole idea of change is exciting, action-packed. There are many questions to be answered - What shall we change? How and why do we change our environment? What do we want our environment to become?

To begin we first have to admit to the existance of our environment, become aware of it. Silly as it may seen, this is no easy matter. "Telling" the child about it, defining it, illustrating it, won't really get the point across. The child learns about the concept of "environment" best through working with it. He can measure it, map it, photograph it, describe it, build models of it, feel it. The more ways he approaches it, the more real and workable the concept of man's environment becomes.

To enrich the experience and motivate the child, he should have some sense of purpose and work to solve some problem. Many of these activities can be built upon answering the question "Why?" Why is our environment as big, as long, as tall as it is? Why are rooms placed where they are? Why are certain places near somethings but far from others? Why do we have curbs and sidewalks? Windows? Doors? Gas Stations? Shopping Centers? Why do you walk to school along some streets and not others? The list is endless and the activities a teacher can explore toward finding answers are equally numerous.

This approach has certain advantages. First, there are alternative answers - not right or wrong ones. Second, (and critical to the ongoing study into man's environment,) is the development of a sense of a purposeful environment. This concept of a purposeful environment, capable of being judged against individual and community criteria is basic to reasoned change, purposeful action.

The development of confidence in making such judgements is important. What criteria can the child develop? The criteria of purpose, intent, function. From an individual as well as from a community point of view, he must determine what the purpose of his environment is to be and judge whether his present environment fulfills that purpose.

Toward achieving these goals, the learning experiences of children in search of answers to the "WHY?" of their world can be enjoyable and rewarding.

The following paragraphs describe classroom activities directed toward the discovery of our world as a purpose environment.

1. Rearranging the Classroom

There is no environment more immediate to the learner than his classroom. Thus, working with the classroom, changing it, understanding how the room and the furniture work in relation to different activities, is an obvious place to begin.

There are variations on the theme. The teacher can preceed specific planned activities with the challenge - "Now, children, let's rearrange the room for a discussion on the film we have just seen - or for five teams to work on your projects, - or for a slide show." By recording the class's solution to each problem on the blackboards, the children can later discuss the reasons behind their decisions, talk about other ways of doing it, compare solutions to other activity problems.

In a slightly more structured approach, the class can arrange the room for four or more different activities one after another. The same kind of discussion as above would follow. It is entirely valid to arrive at (or build into the exercise) similar solutions to two different activities. For example, both viewing a film and listening to a speaker require directed attention by everyone at one specific point in the room.

The questions to be repeatedly asked are:

Why did you do that?
How do you feel about this arrangement?
How else could you have done it?

2. Measuring the Immediate Man-Made Environment

One very obvious question which can be asked is - Why is our classroom (house, school, street) as big as it is? The answer can be very off hand or it can be the basis of a most interesting investigation. If there is one thing which can modify a child's viewpoint concerning his world it is to help him discover the concept that his environment was built for him. One way to arrive at this realization is to see that the size of everything in it is based upon the size of man.

Let the class use rulers, yardsticks, tape measures, anything, to measure everything in the classroom. How wide is a door, a desk, a chair? How high is the window sill? Then go into the corridor. How wide is it? How high is a step? How deep is a tread?

Try to get the answers translated from feet and inches (these do not carry much human meaning) into the child's height and width. The idea that a door is two children wide and a seat is high enough to let his feet still touch the floor is a more interesting way to look at it.

Compare the size of a dog house with the house he lives in. Could a dog house be different for different size dogs?

Have each child paste a photograph of a person on a piece of drawing paper. Then have the child draw a door, chair, sindow along side it. It would be best to draw a line under the figure to represent the floor. The children could draw a second line where they think the ceiling would be.

These are only a few of many parallel activities.

3. Interviewing

As previously stated, a valuable asset in learning about the environment is the fact that there are usually multiple solutions to any problem. Understanding the importance of both individual and community points of view, attitudes and feeling can both develop self confidence in one's own ideas and respect for other people's values. No better way can be found to demonstrate these varying viewpoints than to gather the feelings and statements of many different people concerning their environment.

The interview "questionnaire" should be developed by the child led by the teacher. One basic form should result but it should contain some honest synthesis of the many ideas of the class. The questions can be attitudinal - What do you like (hate) about your block?, evaluative - Where is the place you most like to be in your neighborhood?, informative - Where do you shop for food? The form should have some way of identifying the age or position of the person interviewed.

The child could interview:
- fellow students
- neighborhood friends
- local merchants
- parents
- teachers
- policemen
- etc.

Plotting the answers, comparing notes, discovering similarities and differences should be the follow-up activity. It is up to the teacher to work with the material gathered.

4. An Environment for a Pet Gerbil, Mouse, Etc.

One enjoyable way to discover the meaning of environment is to look for it in the easily observable world of a classroom pet. A small mammal or amphibian environment offers many lessons. How big is it? Is it dry, wet or both? Why? Is it dark or light? Warm or cold? Why?

After each of these questions the children could be asked to compare their room at home or in school with the pet environment. The reasons why they are different or whether they are alike offer many interesting discoveries.

The child may observe the gerbil's need for privacy, it's need for exercise, it's need for warmth. In principle these are not too unlike our environmental needs. But a gerbil doesn't need steps to climb, a place to cook food, or a bed to sleep on.

The children can build simple toys or articles for the pet environment and study it's preferences, it's reactions. The whole world of a pet offers a valuable metaphore for environmental concepts.

5. Photographing the Environment

The 50¢ camera has many obvious uses in observing and recording the child's environment. In keeping with the particular area of concern about which these activities are centered, the following ideas deal with using the camera in discovering answers to Why?

The problem is to develop questions about why the environment is the way it is and then through the medium of photography seek pictorial answers. Such questions might be:

What kinds of things happen on street corners?
What are backyards used for? Why?
What different things are streets used for? Why?
Why are there so many different kinds of signs (street, shops, building)?
What different kinds of windows are there? Why?
And so on.

The tighter the question the more interesting and valuable the learning experience is likely to be. But, the child should select his own topic or be assisted in the selection. There are so many topics this should not be a problem.

6. Counting

Why are there 30 classrooms in a school but only one gymnasium? Quantative questions concerning the environment can be a lot of fun and offer some insights on what and why the environment is.

There are many ways to develop this kind of activity. In some ways they can be seen as "hunting trips" to discover meaningful numerical correlations.

If the children go out into their neighborhood and count building types they may arrive at information such as:

There are 600 houses
5 churches
2 schools
1 playground
4 grocery stores
3 drug stores
and so on.

They can work out the fact that in the particular neighborhood "counted" there is one grocery store for every 150 houses but only one playground for all 600. Why? Do they think that is the way it should be? What other relationship between number of houses and number of playgrounds can they suggest? Why? (It would not be fair to exclude the concept of walking distance from this problem since it plays so obvious a role, particularly for child-oriented places such as schools, libraries and play areas).

There are other things which can be determined by counting. How many people live in a house? How many live on a block? What is the meaning of the term "average number of people in a house?" Does the "average" change from block to block? Why? What does this do to the number of shops? Why? and so on.

7. Mapping

This activity has been saved for last for a number of reasons. First it can be one of the most interesting and enriching activities carried out by a class. Second, however, is the fact that it requires more careful and extensive preparation than many of the preceeding activities.

To begin with, the children are directed toward gathering information through direct observation and recording that information in a way which communicates relationships to themselves and others. They are not learning to be topographers. Therefore, the less they have to struggle with map making the better. The best way is an already prepared map with street names and so on. This is then a base for information. Furthermore, they must not be put in the position, out in the field of struggling with symbol inventing and technique. The kinds of symbols to be used and the technique for using them should be developed by the class prior to their field experience. Everyone should agree to the same set if possible. The value of a common graphic language for communication purposes is obvious.

Another problem is the size of the area being mapped. The task is difficult enough and so much can be learned in a limited area that care must be exercised in setting boundaries. It is always possible to combine the information from many individual maps on a larger area map if this is desired.

What is to be mapped can also be bounded. Here are some examples:

- Map alternative routes from your house to school. Which is the quickest, the prettiest, the most dangerous?
- Map and describe (with symbols) all of the shops in your neighborhood, or on your block, or in this given area.
- Map the direction of traffic on the streets in your area (bounded by "A" Ave. and "C" St. and.....)
- Identify what every building or lot on your block is used for. (Make sure you prepare them for mixed uses, such as apartments over stores, and work out a way to show it.)
- and so on.....

The learning experience can now be extended into "reading" their own maps, comparing it with others and with combined area maps in order to see certain relationships. Why are there stores all along this block but none on this one? Why are gas stations always on corners? The playground is no larger than the supermarket. Why? Remember, the Why? cannot be answered in only one way. It really should be rephrased to say, Why do you think it is there?

The question of providing each child with a base map on which to work, or getting a master map to combine their information, was probably skipped over too lightly. This can very often be very difficult to get. Local city agencies, planning commissions, street departments, realtors, architects or planners might help. An assist from someone who can draw can sometimes convert a street or transit map into what you need. If all else fails, and if the streets are fairly regular, graph paper may sometimes work, (if you decide first how many lines in each direction make a block and do some classroom preparation before the trip.)

This point is being stressed because, unless the children are prepared, what might otherwise be a fun field activity, can become simply fustrating and hateful.

These are only some 7 ideas working around one of many concepts - "Purpose in the environment." In the area of environmental learning there are many other concepts and many other possible classroom activities.

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A COLLECTION OF TEACHING EXPERIENCES - A BEGINNING

During the brief period in which this program has been used in classrooms in Philadelphia and numerous other cities in the United States, numerous ideas have been developed by the teachers involved. Some of these ideas are full fledged programs involving projects which extend over a number of weeks. Others exemplify single creative ideas for classroom activities teaching specific concepts. Many of the ideas involve valuable insights into problems revealed or projected.

We have described some of these experiences for whatever use they may be to the teacher beginning (or already involved) in environmental studies. We offer this as a partial installment of what we hope will become an increasingly complete collection.

We ask the reader to view the "stated objective" as the editor's notes only and ask the reader to look further at each of the activities and comments for the many other possibilities implied.

We also apologize for the absence of adequate credit where not given. It is our basic intention that the creative ideas developed by others be fully acknowledged wherever possible. In some of the earlier reports inadequate information made this impossible.

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FIRST ENTRIES FROM PHILADELPHIA SPRING 1968 - SPRING 1969

In the spring and summer of 1968 the very first tests were conducted in the classrooms of some Junior High Schools in Philadelphia and in the spring of 1969 a revised program was introduced. Some of the ideas and activities which evolved are recorded below.

Entry Number 1

Objective - To work with "real" mathematical problems related to buying and financing a house

A Philadelphia Middle School Math Class

The problem builds upon the selection, purchase, and financing of a house over a period of time to investigate such mathematical concepts as percentages, basic arithmetic and simple equations.

Beyond the mathematical concepts, the teacher built upon the various roles played by banks, real estate firms, mortgage companies, lawyers, etc. in the exercise.

Editor's Note:

Although this was a math problem at its inception, with a direct input into economics, the whole question of individual and family choice in relation to need can be brought in as the starting point. What do we look for in a house? What should be nearby? Is there a playground within walking distance? What kind of house do we want? How big and why?

A valuable resource is the Sunday Real Estate Section.

It would be very possible to ignore the math work entirely and work solely with the problems of personally determining and choosing our environment. This will in some cases involve the introduction of a balance between aspiration and limitation.

Problems 16 and 17 of Our Man-Made Environment Book 7 offer activities relevant to those concepts.

Entry Number 2

Objective - This activity is a metaphore. Its objective was to discover how much we can see if we look.

Pennsylvania Advancement School - An Experimental Middle School

Each child took a lemon from a pile of lemons. When everyone had taken a lemon, he was asked to describe his lemon to the rest of the class. Rule: no two lemons can be described in the same way. This single restriction forced each student to look at his lemon and discover something unique about it. After everyone had

described his lemon, they were all put back into the pile. Then each child took his own lemon out of the heap. Surprising as it may seen, the students who had participated in this problem were able to recognize their own lemons.

Editor's Note:

A second teacher, Eliot Levinson, working with this same problem some weeks later, followed the game by showing slides of row houses and city streets. The same game was hinted at to reveal the way we sometimes do not "see." He felt the point was well made. Everyone agreed the learning experience had been fun.

Entry Number 3

Objective - Changing one's environment - the classroom

Philadelphia Public School - 5th Grade

The teacher of a lower school classroom would introduce different activities during the day with an instruction to the children to rearrange the seating for a specific purpose; reading together, a discussion or individual work. The point was repeatedly made that what they were doing was changing their environment.

Editor's Note:

Many middle school (and upper school) classes in environmental concepts have begun this way as a direct illustration of the effect of the environment upon how it is used and how we feel about it.

Problem 8 of Our Man-Made Environment Book 7 was used as an introduction.

Entry Number 4

Objective - To design and build a model of a house

Pennsylvania Advancement School Middle School

This was a four week problem for a group of boys. They were to design a house to a particular scale, build a model of it and site it on a given "terrain." The teacher (an art teacher) constructed

a clay "terrain" with hills and a stream and some trees, somewhat like a model train base. The boys drew lots to get their specific sites. Then using a variety of picture resources, their imaginations were set loose and the activity began. All during the problem they would be questioned on the whys of their decisions. They would be referred to individual problems in the workbook for a resource. The final result was an intensely rewarding one.

Editor's Note:

One of the potentialities which evolved at the end was the discovery of individual desires in conflict with the community (the class). The individual houses often created poor relationships to one another in terms of privacy and space. If this could have been worked in earlier, a new level of discovery could have been added.

Problems 6-11 of Our Man-Made Environment Book 7 are particularly relevant to this type of project as is problem 4. The film strip "Nature, Man and Architecture" is a good visual aid for this work.

Entry Number 5

Objective - To plan a stage set for a particular scene of a given play

Philadelphia School System - English Teacher

The english teacher after working with the environment as a subject for poetry writing, came upon the idea of relating the image packed micro environment of the stage set to the "real world." A play already under study by the class was used as the base. Working with a particular scene, the children planned and physically set the stage. The "game" was to create an environment, so specific, that the viewer-audience would know where, what, when, with the least effort. The effect of people as a part of the set played a role in conveying the idea. The concept stressed was the way we have come to relate the form of our environment with what goes on in it and how we feel about it.

Entry Number 6

Objective - To sense the environment as everywhere present

Art teacher, Philadelphia School System

The problem was introduced by discussing the way our minds complete and take for granted the space and environment surrounding the

limited picture we get from a television set.

The children were asked to cut out a picture from a newspaper or magazine and bring it to class. The children then pasted the picture in the center of a large piece of drawing paper. The exercise was to complete the picture extending the frame to the edges of the paper. For example; the action photo of basketball players at the net was extended to include the inside of the arena, the seats, other players, the roof, etc. or -- a fire fighting scene was extended to show other buildings, fire equipment, crowds.

A sense of the space in the environment can thus be discovered.

Problem 1 and 2 of Our Man-Made Environment Book 7 offered an introduction to this work.

Editor's Note:

There are a number of exercises teachers have developed to help children discover their environment -- become aware of the comprehensible patterns existing in the complex world in which they live. The techniques involve mapping, interviewing and photography among others. Four of these techniques are briefly explored in the following teachers' experiences.

Entry Number 7

Objective - To develop an awareness of the immediate environment through pictures and photography

Pennsylvania Advancement School - Middle School
Eliot Levinson

The children began by assembling the cube which is the introductory problem in the workbook. A brief discussion followed. The children then cut out and assembled their own cube. Using old magazines the children selected drawings, photos, etc. which they felt described their environment. The result was not the physical environment but an expression of the child's total environment, social, economic, communications, etc. Apple pie, sports heros, pretty girls filled the faces of the cube. This was then used to discuss the meaning of the physical environment, what it was in comparison to the other kinds of environments. A third cube was constructed. This time using 50¢ cameras, the children went out into their neighborhood and sought to find examples of different kinds of spaces, different sizes, rooms, buildings, streets, outdoor spaces. The end product could be a real discovery into the broadest definition of the environment and one that has immediate meaning.

Editor's Note:

The way this teacher worked revealed some of the difficulties all teachers will face in trying to convey the concept of what the environment is. Immediacy is critical, as is personal interpretation. The natural confusion in our communications age between the non-physical and physical environment is something which can be positively built upon to strengthen the idea of the man-made environment.

Problem 1, 2 and 3 of Our Man-Made Environment Book 7 offer some introduction to this work.

Entry Number 8

Objective - To develop an awareness of the immediate environment through interviewing its inhabitants

Pennsylvania Advancement School - Middle School
Eliot Levinson

The teacher working with the concept that we can learn about something by gathering the views of others and comparing them with our own views, built a unit on interviewing the inhabitants of the surrounding blocks. The children participated in developing and writing the questionnaire. They included questions about what was liked, what was not liked and what the residents would change. They interviewed adults and children, friends and strangers, shopkeepers and workers.

The results were reviewed, roughly tabulated and compared with their own feelings. A deeper sense of the meaning of their environment and the idea of different points of view was developed.

Entry Number 9

Objective - To develop an awareness of the immediate environment by looking for geometric shapes

Math Teacher - Philadelphia Middle School

The fun of a hunt for a specific thing offers the opportunity for an expanded awareness beyond the limits of the game. Building upon this theory, a mathematics teacher after working with her class on geometric solids and shapes, planned a field trip around the neighborhood in search of examples of the shapes in the man made environment. The game proved a pleasant learning experience.

Editor's Note:

It would have been possible to intensify the individual experience of this "hunt" if the findings were captured on film with the 50¢ camera.

Entry Number 10

Objective - To develop an awareness of the immediate environment through the process of mapping

Philadelphia Middle School Teacher

A teacher assigned the class the project of mapping their route from home to school, describing the kinds and location of buildings and spaces along the way. Each child, using graph paper, made a street base map. The City (Philadelphia) was extremely regular in this particular neighborhood. Using this predrawn base, the children plotted stores, houses, churches, etc. and the specific route they walked on their way to school. An amazing insight into the environment was gained through this process. They discovered the variety of building types, the patterns of location and discussed the reasons why they thought it had developed that way.

Editor's Note:

The environment is a physical concept and it requires first hand discovery to come to really sense the way it goes together. There are, however, many difficulties in mapping. To begin with, the goal is to locate, think, observe, understand -- not become proficient map makers. Thus, it is critical that the graphic communication tools be simplified and assisted to eliminate the puzzle-like situations which can otherwise result. If at all possible the base should be provided or they should develop it in class with assistance from the teacher. The means of communicating through symbols should be simplified. Either rely on literal skills using abbreviations or first letter symbols or some simple uniform symbolic language.

Entry Number 11

During this same period in Philadelphia, there were underway a handful of programs built almost entirely on the environment. Though only obliquely related to the work being done by GEE! they produced many valuable ideas. One in particular was the "Model City Laboratory" developed by Ken Lieberman while teaching in a Philadelphia Middle School. It was later expanded to a half dozen or so classrooms around the City under Mr. Lieberman's direction.

Model City Laboratory

The entire concept is built upon individual study and research while part of a team involved in the building of a model city. The model city is built with Lego blocks, a patented interlocking plastic block building toy. Each team had its own base and its own set of blocks of differing colors, sizes and shapes. The effort began as a free understructured "play" session. The discovery of complexity, confusion and error which results is directed toward a series of growth steps. Beginning with scale and symbology to communicate intentions then it proceeds through studies into movement systems, building groupings, social needs. The information is not "given," it is provided for through resources of a multi-media nature for individual students research. The model thus underwent repeated change and refinement. A combination of increased knowledge and awareness to ~~innovative~~ alternatives resulted in a final model which was both rewarding to the students and expressive of the many new learning skills employed.

The requirements include adequate time (these experiences were one semester in length) and space which allowed the models to remain up during the entire time, and time and space to develop the multi-media resources so critical to individual research.

SECOND SERIES OF ENTRIES FALL 1969 - SPRING 1970

In the Fall of 1969 teacher training workshops were conducted in Houston, Texas; Ann Arbor, Michigan; Columbus, Ohio and Newark, Delaware. Later in 1969, teachers from six school districts in New Jersey, including Newark, Atlantic City, Trenton, Camden, Salem and Bridgeton participated in an extensive workshop. Many interesting ideas came out of these workshops, a few of which are recorded below.

Entry Number 12

Objective - Planning a classroom built upon group choice

Ann Arbor Michigan Middle School

This problem was partially verbal and partially active.

The children were given the problem of determining how they would like the classroom (in this instance an art room) to be. Realizing the severe limitation which the classroom they were in imposed upon their imagination, she conceived of a game to free them up. She began by asking them to remove the one thing they felt they didn't need. Then she asked them to remove a second object, a third and so on. When they had gotten down to bare essentials (if not a bit beyond) they began in forward motion. They added what they felt they wanted most.

Some of the decisions were actually carried out or planned -- others obviously had to be acted out or imagined.

Problem 8 of Our Man-Made Environment Book 7 offers an introduction to this exercise.

Editor's Note:

There are many variations on this theme. The next problem is an example.

Entry Number 13

Objective - Changing one's environment - a bedroom

Houston Texas, Art Teacher Middle School

A good way to follow up work in problems relating to the classroom environment, which of necessity involves group decisions, is to work in the area of personal choice. Any room would do. The teacher in this exercise used the bedroom. Not every child has his own bedroom, some have no bedroom at all and with few exceptions, they have no freedom to change it even if they have one. Nevertheless, the children do not seem hindered in projecting their wishes.

As a working base, a shoe box or similar cardboard box was used. A door and windows were cut out. (The lid left off.) Then the children planned and furnished the room. Discussions over what was needed and why took place as a group and individually. There was no need for uniformity -- only the need for personal justification. The children could paper or paint it in the colors or textures of their choice.

The goal is not the "beauty" of the final model but the process of determining what he would put in the room, where it would go, how it would look (color, etc.) and knowing why they did it that way.

Entry Number 14

Objective - Developing activities on the subject of movement.

A Team of Teachers from Different Districts in New Jersey

Beginning with Problem 12 of Our Man-Made Environment Book 7, a list of activities built around the theme of movement in the man-made environment was developed. The suggestions included:

- Mapping each child's route from home to school.
- Having each child explore and record different routes between home and school - the fastest, the prettiest, the most dangerous.
- Having each child take turns with a pedometer - measuring the distance they live from school.
- Plotting and discussing the dangerous intersections around the school and how they might be improved.
- Mapping the movement system inside and around the school - recording frequency of use, by whom, problems and possible solutions.
- Using road maps, planning trips to neighboring communities and comparing time-distance factors.
- Expanding the above to include train, bus and air travel.
- Mapping the circulation system of their home or apartment.

Editor's Note:

The list is endless. The point to realize is the rich potential in class activities which can be developed about any theme under any basic curricula - Social Studies, Math, English, Art.

THIRD SERIES OF ENTRIES SPRING OF 1970

The results of the 1969-70 school year experience produced some outstanding ideas. The richest material for helping other teachers evolved out of the work of a group of Philadelphia teachers called the "Urban Collaborative." Under the direction of Eliot Levinson of the Pennsylvania Advancement School, these teachers developed, wrote and tested a number of excellent mini-curricula. Three of these are being assembled for distribution to teachers and for classroom use. Some of the ideas are capsulized below. The teachers involved were:

Arlene Donsky
Edith Fenton
Robert Fisicaro
Eliot Levinson
Peter Merlino
Marion Moultrie
Cecelia Tyler

The Mapping Unit - "Learning to Get Around"

Entry Number 15

Using familiar objects such as rulers, erasers, tin cans, dollar bills, the concept of scale is taught. The simple folding of paper - always in fourths, allows for the rapid visual connection between familiar objects drawn at different scales.

Entry Number 16

The concept of coordinates, horizontal and vertical, are taught through games and problems involving theoretical maps with fun sounding towns. The transition to real maps and on to latitude and longitude was made later by the teachers.

Entry Number 17

The teachers made thorough use of maps of Philadelphia, playing an elaborate treasure hunt type game. The children had to use a combination of maps - ethnic population data, zip codes, streets, schools, etc. - to solve their problems. The result - better map reading skills and a sense of how to get around in their environment.

Introductory Unit on Urban Studies

Entry Number 18

Using select readings, chosen for their relevance to the children's experience, different points of view about living in the city were explored. The importance of the environment, its impact on our lives is stressed.

Housing Unit

Entry Number 19

Using sugar cubes, the different types of housing were developed. The activity was handled as a series of problems revealing the ways each housing type answered different needs and constraints. The types were compared with each other and with the houses the children lived in.

Entry Number 20

Children read the different responsibilities placed upon the tenant, the landlord and the city in relation to housing problems. Through role playing and problem solving the different responsibilities were brought out and discussed. Actual directions in solving some of the problems were developed using local city data.

Entry Number 21

The cost of housing and budgets were built into a number of problems involving newspapers, shopping lists, economic data on income.

Another rich set of experiences developed out of the classrooms working with the material in New Jersey. Sadly, these experiences were not adequately recorded but brief descriptions of some of these ideas are listed below.

We want to thank the other teachers who participated and whose comments were not included.

Camden, New Jersey
Robert Murphy - 6th Grade Mathematics

Newark, New Jersey
William Berlin - 10th Grade Social Studies
Adelbert Berry - 8th Grade
Stella Westhoff - 8th Grade Art

Trenton, New Jersey
Sue Geshner - 8th Grade Social Studies

Atlantic City, New Jersey
Ted Mott - 3rd and 4th Grades

Entry Number 22

Atlantic City, New Jersey
Harold Zuckin - 6th Grade

Class made an 8mm film describing the good and bad they observed in and around the school. It led to the development of ideas for change and an activity program to clean up the community.

Entry Number 23

Bridgeton, New Jersey
Gary Moore - 7th Grade Science Team

Developed an 8mm film on pollutors and the neighborhoods in the town. Developed programs and ideas. Wrote City Council about problems - asking for improvements in garbage collection, etc.

Entry Number 24

Bridgeton, New Jersey
Bill Chestnut - 7th Grade Science Team

Class made a model of six block area around school, researching data, observing and discussing problems. With the aid of a local city planner they developed ideas for change.

Entry Number 25

Bridgeton, New Jersey
Michael Benfer - 7the Grade Science Team

Using cameras, class compared the built and natural environments looking for design and function and evoking questions and discussions.

Entry Number 26

Camden, New Jersey
Joe Falco - 6th Grade

Beginning with environmental notebooks, the class moved to more action oriented programs. Organized and led an all-school, all-neighborhood major cleanup. Students wrote city and got city workers to help. Invited councilmen and civic leaders in for discussions of neighborhood problems. Learned of their own and their parents' responsibilities as well as the city's.

Entry Number 27

Camden, New Jersey
Ruby Alfred - 6th Grade

Class developed a school for 3000 students - no teachers. Teacher left class one day to allow class to test their ideas of self rule - experiment worked.

Class then developed a city for the year 2500, encouraging a sense of aspiration and an awareness of the possibilities of urban change.

Entry Number 28

Newark, New Jersey
Carrie Williams - 7th Grade

Re-arranged room - did readings and held discussions - brought in English, Social Studies, Art, everything. The class used cameras, took trips, working individually and in committees. They created worlds of Yesterday, Today and Tomorrow. They made models of schools and other buildings as they would like them to be. Were interested in writing about the environment despite usual reluctance to writing down their thoughts.

Entry Number 29

In Houston, Texas, growing out of the 1969 workshop, a program was developed by Ruth Mae McCrane. It was a bilingual study of our man-made environment incorporated into the Art program. Some of the ideas incorporated in that program included making designs for household objects; painting pictures for a particular room; learning about the "design" of the city using maps of Houston; designing a community park; and drawing a residential community. Using crossword puzzles, the different terms used in communicating ideas about the environment, in both Spanish and English, were taught.

This program was taught again by this teacher in the 1970-71 school year. Slides of the models and drawings made by her students reveal a rich and exciting art experience.

gee!
Group for
Environmental
Education Inc.
1214 Arch Street
Philadelphia
Pennsylvania 19107

AN INTRODUCTORY LIST OF RESOURCES FOR USE WITH PROGRAMS IN OUR MAN MADE ENVIRONMENT

One of the problems facing teachers today is the lack of supportive material that can be used in a program on environmental studies. Until sometime in the future when there is a supply of resource material to meet the demands of teachers and students, teachers must fend for themselves. This calls for a highly creative approach that puts all possible materials to work... tin cans, newspapers, cardboard boxes, the classroom, sugar cubes, etc.

There is no shortage of films, books, periodicals, film strips and slides that can be used in environmental studies but as most of them are designed to perform a different function, the selection of materials will certainly be a challenge. Careful consideration must be given as to what your classes' interpretation will be.

Often a "make do" approach produces results more rewarding to both teacher and child than those resulting from structured material...everything becomes a potential resource.

a non-profit corporation

AUDIO VISUAL AIDS

Films

A CHILD WENT FORTH...Produced by the American Institute of Architects. Color, approx. 20 minutes. "Each day a child went forth, and the first thing he saw that day he became"- a moving statement concerning the effects of our environment of learning and the will to learn, as well as a compelling argument for a more human, relavant, and generally improved education for our children. Undoubtedly one of the best films the AIA has ever produced, A Child Went Forth is not meant for children's viewing as much as it is meant for teachers, school boards, architects, and all those involved in education. Many AIA Chapters have bought the film and will lend it to you.

Available from:

The American Institute of Architects
The Octagon
1735 New York Avenue, N.W.
Washington, D.C.

NO TIME FOR UGLINESS....The award winning film sets forth the problems inherent with nearly all of the big and some not-so-big communities. Copies available for free loan or purchase through:

The American Institute of Architects
The Octagon
1735 New York Avenue, N.W.
Washington, D.C.

"A" IS FOR ARCHITECTURE....Produced by the National Film Board of Canada and available through Contemporary Films. A review of the history of architecture with a good photography and musical background. Particularly suitable for elementary and junior high school showings. Educational in emphasis. Time: 30 minutes. Color

Available from:
Contemporary Films
330 W. 42nd St.
New York, New York 10036

WHY MAN CREATES...Produced by Saul Bass for Kaiser Corporation. "A beautifully photographed, imaginatively produced, and intricuing film. Depicts the work, obstables, frustration, and accomplishments of the creative man in a wide spectrum." A really enjoyable, as well as educational, film. If there is a Kaiser Corporation office in your area they should have Why Man Creates.

Available from:
Kaiser Corporation
Kaiser Center
Oakland, California

THE CITY...1939 film on urban problems. Excellent explanation of problems of 30 years ago applicable today.

Available from:
Museum of Modern Art
11 West 53rd Street
New York, New York

Film Strips

NATURE, MAN AND ARCHITECTURE...is an excellent film strip dealing with architectural design in primitive and modern societies, as it evolves from human and environmental needs.

Slides

The real potentiality of a class slide show is to reveal things about places and buildings in the immediate area. Such a slide show can be specially prepared by the students or the faculty.

Music

The CUE program in New York makes extensive use of folk songs in describing the growth of cities through ethnic emigration and immigration. There are many pop songs (Downtown) and folk songs (Little Boxes) built around the joys and horrors of the city environment.

MAPS

Maps are helpful in describing the student's environment and useful in class projects involving observation and discovery. There are many types of maps, some of which are readily available, depending on the particular city and the availability of professional assistance. Some of these types are as follows:

Tourist Maps
City Street Maps...available from city agencies
City Planning Maps...available from local planning commission
Sanborn Maps...showing individual streets, buildings and lots, available from the planning commission or real estate companies, or directly from Sanborn Map Company, Inc., 629 Fifth Avenue, Pelham, New York 10803 for $9.00

U.S. Coastal and Geodetic Maps...available from map companies
Urban Renewal Maps of Proposed Projects...available from re-development authority or agency
Aerial Photo Maps
Land Use Maps...showing information of a particular area under study for some type of governmental program.

Newspapers

Four possible uses of newspapers as a classroom resource:

1. The Real Estate section provides a measure of the available types of housing, including information about price and location.

2. There are newsworthy battles involving zoning, highway locations, traffic light placement, urban renewal, etc., that depict public action.

3. Public bodies using newspapers to promote planning proposals and new developments, sometimes offer an information resource.

4. The growing awareness of air pollution problems is sometimes revealed through the publication of the names of major industrial offenders. It is becoming a newsworthy item.

Periodicals

Three kinds of periodical resources can be identified:

1. General news or picture magazines such as TIME, LIFE, LOOK which now cover environmental news on a continuing basis.

2. Home magazines such as HOUSE BEAUTIFUL, HOUSE AND GARDEN, and AMERICAN HOME offer illustrative material not always relevant to the inner city but nevertheless provide a resource in graphic communication and housing alternatives. These magazines must be used with great caution as the slick, unreal approach to their subjects can have bad repercussions.

3. Technical magazines such as PROGRESSIVE ARCHITECTURE, ARCHITECTURAL FORUM (especially good for inner city problems) INDUSTRIAL DESIGN, DOMUS (an Italian magazine with 21st century implications), are of primary value as picture magazines and useful in expanding alternatives. They all currently express a growing concern and involvement in the city and the natural environment.

Books

So few books are specifically directed towards environmental studies that a wide variety of books must be looked at for their potential resource value.

This bibliography is offered as an introduction, more into the types of books available than their specific titles.

Familiarizing yourself with the scope of the subject will allow you to choose your own reading materials.

For an easier introduction into their functions, the books have been divided into six categories. This structure is introduced only as an aid. Many books are listed in more than one category. The six categories are briefly defined below:

I For the Teacher

Non fiction books that serve as an introduction to current writings on man's relationship to his environment.

II Teacher technical resources...encyclopedic

Many books are well beyond the needs of teachers but contain the graphics and information often required in building specific programs.

III Student picture books

Many books, although intended for technical use or the more advanced reader, are so full of illustrative materials that they can be useful to students.

IV Action oriented

A few books are directed towards "doing" or "building." These are usually of great value either as the central theme of a lesson or to illustrate environmental concepts.

V Children's reading material

There are a few books available, written on the level of young people, that relate to aspects of the environment: social, technical, historic. They appear in the forms of poetry as well as text.

VI Juvenile picture books

In this creative area, a number of recent books have been produced on subjects close to, or in some oblique way related to, the environment as parables or metaphors. Depending on the reading level and peer group resistance to them as reading material, they offer possible resources.

I For the Teacher

THE HIDDEN DIMENSION
Edward T. Hall/Doubleday & Co., Inc./$1.45
An anthropologist examines man's use of space in public and private places - very interesting book and not to technical for general understanding.

ENVIRONMENTAL MAN
William Kuhns/Harper-Row/$4.95
A short book that offers an analysis of the interaction between man and particular environments - useful to the teacher as background material.

THE FITNESS OF MAN'S ENVIRONMENT
Smithsonian Institution Press/$5.95
The book is a collection of papers that were delivered at the 1967 Smithsonian Institutions Annual Symposium. The authors and others, biologists, architects, anthropologists, all feel that man can no longer afford to alter his environment without developing new guidelines for these changes. The book is not concerned as much with city life as it is with the results of man's use of technology.

TOWARDS A NEW ARCHITECTURE
Le Corbusier/The Architectural Press
A simple statement of environmental philosophy by one of the 20th century's finest architects. A short but very important work.

ENVIRONMENT FOR MAN: THE NEXT FIFTY YEARS
William R. Edwal, Jr./Indiana University Press/$2.95
Book is a collection of papers written during the first half of a two year research project conducted by the American Institute of Planners during which they hoped to define and begin working toward "Optimum Environment with Man as the Measure." Concern for integrating science with society during the next fifty years is expressed through these writings of microbiologists, architects, psychologists and others. Book is similar in format to the Man's Environment.

OUR NOISY WORLD
John Gabriel Navarra/Doubleday & Co., Inc./$4.50
Discussion and photographs concerning the problem of noise pollution. Book is filled with factual information and is written in an easy to read style.

LUTHER
Brumsic Brandon, Jr./Paul S. Eriksson, Inc./$1.95
A "Cosmic" book in which we meet Luther and his friends Hard Core, Pee Wee and Oreo who live in Inner City. The book should be read by teachers before sharing it with students.

GARDEN CITIES OF TOMORROW
Ebenezer Howard/M.I.T. Press/$1.95
A classic, originally published in 1898. Howard's utopian urban concept is still respected by city planners as they re-evaluate the city's needs and structure.

MAN IN METROPOLIS
Louis B. Schlivek/Doubleday & Co., Inc./&7.50
A non-fiction, somewhat technical, novel about fifteen individuals and how they interact with their environment. Each person relates to the city from a different social and economic position.

THE LANGUAGE OF CITIES
Fran P. Hosken/MacMillan Co./$9.95
An excellent book that should be read by everyone interested in our man made environment. It introduces the reader, through pictures and an easily understandable text, to the function, design and vocabulary of the city.

THE DYNAMICS OF CHANGE
Don Fabun/Prentice-Hall, Inc./$8.95
The pictures and text of this excellent book cover a wide range of subjects. It is very helpful in understanding the world of tomorrow as we are building today. Although the book is quite factual, students may find the information exciting.

STREETS ARE FOR PEOPLE
Bernard Rudofsky/Doubleday & Co., Inc./$14.95
A beautifully illustrated book that discusses the street as the lifeline of urban civilization. It explains the history of streets from a dozen countries but is not directly helpful in understanding the makeup and problems of big city streets in the United States today..

COSMIC VIEW
Kees Boeke/John Day Co./$3.75
This book is useful in understanding distance, space and scale. It shows the universe in 40 pictorial jumps, each picture is drawn from a spot ten times "further up" than the previous one. The first picture is of a girl sitting in a chair and the last one near the edge of infinity.

OPERATING MANUAL FOR SPACESHIP EARTH
R. Buckminster Fuller/Simon and Schuster/$1.95
An important book exploring a fresh viewpoint into man's abilities to solve his environmental problems on a vast scale.

II Teacher Technical Resources...Encyclopedic

COMMUNITAS
Paul and Percival Goodman/Vintage Books/$1.45
A guide to the thoughtful planning of cities that provides for a means of livelihood and a way of life.

THE DEATH AND LIFE OF GREAT AMERICAN CITIES
Jane Jacobs/Random House/$5.95
Book is written in the style of an exciting novel and is a good exposition of existing urban values and some of the dangers of change as presently conceived.

THE HOUSE
Robert Woods Kennedy/Reinhold Publishing Corp./$6.95
Book is quite technical as it delves into the art of design of a house as applicable through its functional needs.

ENCYCLOPEDIA OF MODERN ARCHITECTURE
Wolfgang Pehnt/Harry N. Abrams, Inc./$15.00
Reference book with 400 illustrations and brief texts concerning architects, buildings and related subjects. Very useful for finding specific information concerning architecture.

THE URBAN PROSPECT
Lewis Mumford/Harcourt, Brace & World, Inc./$2.45
This book offers one well respected authority's concept of the modern metropolis and the problems it faces today and tomorrow as well as his proposal for a new urban form that provides for social complexity without destroying the land and its inhabitants.

MEGALOPOLIS
Jean Gottman/M.I.T. Press/$3.95
A statistical study of the urbanized northeastern seaboard of the United States. The book is full of facts and is not light reading.

NURSERY SCHOOLS
Le Corbusier/The Orion Press/$5.95
Pictures and text show the evaluation of a nursery school as the best possible environment for children. The structure of the nursery school is considered in terms of its functions.

EXPERIENCING ARCHITECTURE
Steen Eiler Rasmussen/The M.I.T. Press/$2.95
Book is profusely illustrated and concerned with how we perceive the things that surround us as noted through instances of architectural experimentation through the centuries.

TOWNSCAPE
Gordon Cullen/Reinhold Publishing Corp./$15.00
Text and visuals are helpful in developing a vocabulary of architectural terms. It is like an illustrated dictionary and is an excellent reference book.

DESIGN OF THE HOUSING SITE
Robert D. Katz/University of Illinois/$7.95
A richly illustrated presentation on alternative ways of grouping houses and apartments on various sites. Book includes information about zoning, building codes, regulations and controls.

VARIOUS DWELLINGS DESCRIBED IN A COMPARATIVE MANNER
Richard Saul Wurman/Joshua Press/$6.65
(1214 Arch Street, 2nd floor, Philadelphia, Pa. 19107)
A delightful collection of comparative descriptive drawings of dwellings from around the world through history. Book is helpful in understanding perspective and architectural drawings.

MEDIEVAL CITIES
Howard Saalman/George Braziller/$2.95
A critical look at the medieval city and the economic, social and political forces that shaped it.

CITY SENSE
Theo Crosby/Reinhold Book Corp./$2.75
The author considers the city man's greatest invention with pictures and text, he attempts to develop a coherent approach to city living through an understanding of its elements and functions.

III Student Picture Books

SIGNS IN ACTION
James Sutton/Reinhold Publishing Co./$2.25
Pictures of signs, mostly in use today, and a discussion of their functions as a medium.

NEW MOVEMENT IN CITIES
Brian Richards/Reinhold Publishing Co./$2.45
Discussion of the movement and transport of people within the short distances of the city.

TRANSPORT DESIGN
Corin Hughes-Stanton/Reinhold Publishing Co./$2.45
An analysis of the problems in designing transport vehicles as related to their function, form and environment.

THE JAPANESE HOUSE
Kiyoko and Tatsuo Ishimoto/Bonanza Books/$2.98
An extensive collection of illustrations and photographs of Japanese houses. With possible variations for American use. The contrast between American and Japanese design is interesting and easily recognizable.

BEDROOMS
Dorothy Meade/MacDonald & Co. Ltd./$2.00
The mystique, functions and furniture of the bedroom are discussed and illustrated. The book is quite factual but still interesting in that the subject is familiar to all.

WROUGHT IRON RAILINGS, DOORS AND GATES
Iliffe Books Ltd./$11.50
Pictorial Essay of wrought and forged iron work in and on a variety of structures. Bock is useful in stimulating students awareness of variety.

ENTRANCES AND STAIRCASES
Iliffe Books Ltd./$11.50
Pictorial Essay of entrances and staircases showing variety in design, function and construction.

OF WONDER AND A WORLD
Jean Mary Morman/Art Education, Inc.
A childs art appreciation book that develops questions and projects to stimulate an awareness and development of critical powers.

TEXTURES
Phil Brodatz/Dover Publications, Inc./$2.50
Book offers visual stimulation through 112 plates of photographed textures.

PERSPECTIVE

Jan Vredeman De Vries/Dover Publication Inc./$2.25

73 plates with limited text depicting through perspective drawings of buildings, the most famous art of eyesight.

THE LANGUAGE OF CITIES

Fran P. Hosken/MacMillan Co./$9.95

An excellent book that should be read by everyone interested in our man made environment. It introduces the reader, through pictures and an easily understandable text, to the function, design and vocabulary of the city.

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The pictures and text of this excellent book cover a wide range of subjects. It is very helpful in understanding the world of tomorrow as we are building today. Although the book is quite factual, students may find the information exciting.

STREETS ARE FOR PEOPLE

Bernard Rudofsky/Doubleday & Co., Inc./$14.95

A beautifully illustrated book that discusses the street as the lifeline of urban civilization. It explains the history of streets from a dozen countries but is not directly helpful in understanding the maekup and problems of big city streets in the United States today.

COSMIC VIEW

Kees Boeke/John Day Co./$3.75

This book is useful in understanding distance, space and scale. It shows the universe in 40 pictorial jumps, each picture is drawn from a spot ten times "further up" than the previous one. The first picture is of a girl sitting in a chair and the last one of space near the edge of infinity.

GOD'S OWN JUNKYARD

Peter Blake/Holt, 1964

Excellent illustrations and vigorous reading on the "Planned deterioration of America's landscape." Contrasting examples of deterioration and beauty in towns, along roads in the sky, are introduced by brief essays, illustrated with numerous photographs and highlighted with quotations. Can be used in conjunction with discussions on almost any environmental problem. Text suitable for junior high, but illustrations useful in elementary school.

PIONEER TEXAS BUILDINGS: A GEOMETRY LESSON
Clovis Heimsath/University of Texas/$12.50
Anonymous small buildings of simple volume are related to geometry solids and voids by means of large photographs, clear sketches and captions. No text, good tool to use to introduce abstractions to children.

DISCOVERING DESIGN
Marion Downer/Lothrop
By use of unusually good photographs, serves to bring an awareness of the beauty of design which surrounds us. For introducing anyone of any age to awareness of design in the environment, but particularly valuable to young persons. Use nature, man-made objects, and formed art, to introduce beauty of line, pattern, rhythm, and abstraction.

SO WHAT ABOUT HISTORY?
Edmund S. Morgan/Antheneum
We can learn a lot about the past by examining the "junk" people leave behind. What we have kept and why we have discarded certain other things. Shows how people change their ideas, their way of life and influences which help to bring about change. Illustrated with good photographs of art objects, cities and architecture.

WHAT IT FEELS LIKE TO BE A BUILDING
Forrest Wilson/Doubleday/$3.50
A visual book, humorous, with brief text explaining the components of architecture.

IV Action Oriented

ARCHITECTURE: A BOOK OF PROJECTS
Forrest Wilson/Reinhold Book Corp./$6.95
A book of projects helpful in understanding structural principles, classic symmetry, scale and space. Extremely helpful for classroom building and construction projects.

THE MYSTERIOUS FLEXAGONS
Madeline Jones/Crown Publishers, Inc./$1.95
A "how to" book about the making of paper flexagons and some information about their geometry.

DIVERSONS AND PASTIMES
R. M. Abraham/Dover Publications, Inc./$1.00
A "things to do book" helpful in developing class projects.

V Children's Reading Material

OF CITY STREETS
Nancy Larrick/J. B. Lippincott Co./$4.95
An anthology of poetry about the city and its people.

A BUILDING GOES UP
Ely Jacques Kahn/Simon & Schuster/$3.95
A short illustrated book describing the steps in constructing a building from preliminary plans to the "installation of the last water cooler."

MAN, NATURE AND HISTORY
W. M. S. Russell/The Natural History Press/$6.95
A text book that examines the relationship of man and his society to the natural environment in different regions throughout the ages.

CAVES TO SKYSCRAPERS
Irving Robbin/Grosset & Dunlap/$1.00
In an elementary manner, this book shows how people throughout history have adapted shelter to their basic life needs.

THE OTHER CITY
Ray Vogel/David White, N.Y./$1.95
Four teenage boys explore their city with photographs and words that reveal life in the inner city.

I THOUGHT I HEARD THE CITY
Lillian Moore/Antheneum/$3.75
Poetry evoking the city in its many faces.

THE PUSHCART WAR
Jean Merrill/W. R. Scott
This fictional book is a satire of New York in the 1970's. Describes one of the problems of life in the city - traffic - and what happens when the pushcart peddlers take a stand against the truck drivers of New York City.

FROM TEPEES TO TOWERS
Carl E. Hiller/Little Brown
A brief survey of American architecture presented by means of striking and well-chosen photographs and limited text. For use by many age groups. Illustrated.

HOW PEOPLE LIVE IN THE BIG CITY
Muriel Stanek/Benefic
City life in its many forms. Schools, recreation, housing, and public services are some of the topics discussed. Adequately illustrated. Simple vocabulary.

HOW THE WORLD'S CITIES BEGAN
Arthur S. Gregor/E. P. Dutton
The gradual development of the first cities. Well organized text and simply written. The final chapter deals with the problems of today's fast growing cities and the challenge they present to modern man.

VI Juvenile Picture Books

THE BIGGEST HOUSE IN THE WORLD
Leo Lionni/Pantheon/$3.95
The building of a house from a snails point of view. It is interesting to see how an animal attempts to change his environment.

THE BEAUTIFUL ISLAND
Meg Rutherford/Doubleday & Co. Inc./$1.00
An adult fantasy, beautifully illustrated. It is fun to see buildings in an environment different from that in which we are used to seeing them.

THE CIRCUS IN THE MIST
Bruno Munari/The World Publishing Co./$4.95
The book is a work of art that shows the changes of the city's moods and colors and pace through the author's creative use of paper color and poetic text. Good for getting a fresh, light look at the city.

SQUARES ARE NOT BAD
Violet Salazar/Golden Press/$2.50
A children's book concerning geometric shapes and their interrelationships.

THE CITY BOOK
Dorothy Freedman & Geraldine Richelson/Harlin Quist, Inc./$1.95
A collection of puzzles and games and stories and riddles, designed to make children aware of their city.

Some industries publish excellent booklets completely unrelated to their product, Koppers has published two such booklets:

HOW TO BUILD AN IGLOO
Brief discussion of the Eskimos' social structure and architecture.

TANGENTS IX
How to design a home when the most important thing you will ever own is an egg.

These booklets may still be available by writing:

Koppers Company Inc.
Koppers Building
Pittsburgh Pennsylvania 15219

The Education Development Center has developed a program entitled "Man; A Course of Study" that consists of a series of booklets, some of which can be used as resource material in the environment. You can obtain a "sample set" by sending $9.00 to:

Education Development Center, Inc.
15 Mifflin Place
Cambridge Massachusetts 02138

Two of the booklets particularly relevant are:

BUILDING AN IGLOO
16 illustrations depicting how to build an igloo.

STRUCTURE AND FUNCTION
Illustrations showing the relationship between function and structure.

Other Curriculum Materials

CITY CHANGE....Developed by Richard Hatch for the Center for Urban Studies, taught originally in some NYC schools and now being distributed by Ginn.

This is a 5th grade Social Studies unit involving a workbook, tapes and slides.

It is not fair to summarize the content and intent but it can be described as including investigations into the ethnic and racial mix which makes up our urban centers, the reasons behind the movement to the city; working in the city; personal choice and needs and the dream solutions expressed by Utopian plans. The program makes extensive use of folk songs, many of which are printed in the available materials (from CUE). It is an action oriented program of great importance.

HIGH SCHOOL GEOGRAPHY PROJECT....distributed by MacMillan, developed in Boulder, Colorado.

This kit contains visual and textual information, a planned curriculum unit and individual student worksheets. This reviewers experiences with the material to date are very limited. There are serious problems in symbology and in comprehension level as set out in the suggested program but with modification, it is believed that the information and kit elements can be used in a variety of rich exercises.

THE AFFECTIVE LEARNING DEPARTMENT....of the Philadelphia School System headed by Dan Kopple and Norman Newberg have developed an innovative approach to Urban Studies. This material which centers upon getting interested, expressing oneself about one's surroundings and "getting up" to do something about it is just getting started. Some material might be available through Mr. Kopple in Philadelphia.

NEIGHBORHOOD....A game in which development of an urban area is simulated through plays on a game board.

Available from:
C. Abt Associates, Inc.
55 Wheeler Street
Cambridge Massachusetts

MAKE YOUR OWN WORLD....A location study game whereby problems concerning political, economic, social and physical aspects of city living are solved by groups of students representing various elements or sectors of the community. Each group is represented politically by one vote on the suggested development to an existing city and its surroundings. Best suited for students above sixth grade.

Available from:
Coca-Cola Bottling Co.
13th Street and York
Tampa Florida

THE CITY....This is one of several classroom kits developed by MATCH Inc., which includes a model kit, photographs, books, aerial photographs, and a record, all related to exercises in the teacher's manual. The kit is designed for grades 1-3, to help kids better understand their city and work with its design problems.

Available from:
MATCH Inc.
Children's Museum of Boston
Boston Massachusetts

gee!
Group for
Environmental
Education Inc
1133 Quarry Street
Philadelphia
Pennsylvania 19107

RECOMMENDED STARTING LIBRARY

IN ENVIRONMENTAL STUDIES

TEACHER ORIENTED

a non profit corporation

THE HIDDEN DIMENSION

Edward T. Hall/Doubleday & Co., Inc./$1.45

An anthropologist examines man's use of space in public and private places. He discusses at length the relationships between crowding and social behavior; and our sensual (visual, auditory and olfactory) perceptions of space. A very interesting book about each man's invisible bubble of space that constitutes his "Territory."

THE LANGUAGE OF CITIES

Fran P. Hosken/MacMillian Co.,/$9.95

An excellent book to introduce the reader to the vocabulary of function and design within the man made environment. It is very helpful in understanding the basic elements of and a means of communicating about city structure.

COSMIC VIEW

Kees Boeke/John Day Co./$3.75

This book written for children, is helpful in understanding distance, space and scale. It shows the scope of the universe in 40 pictorial jumps. The first picture is of a girl sitting in a chair, in front of school with a cat in her lap. Each following picture is drawn from an imaginary spot ten times "further up" than the previous one; the last one being near the edge of infinity.

MEGALOPOLIS

Jean Gottmann/M.I.T. Press/$3.95

As a study of the northeastern seaboard of the United States today and how it grew into a continuous stretch of urbanization, this book offers insight into this unique region. It is a statistical work, crammed with facts and is not easy reading.

OPERATING MANUAL FOR SPACESHIP EARTH

R. Buckminster Fuller

Although a succinct summary of what has been on this futurist/architect's mind for years, both his illusory language and complex message make demands on intellect. It is a short work in which he considers the planet earth as a traveling spaceship and describes our miraculous continuing life systems. He has an overview well into the 21st century.

THE LAST WHOLE EARTH CATALOGUE

Pa. Portola Institute, Inc./$5.00

The Whole Earth Catalogue functions as an evaluation and access device and lists books or items that are useful as tools relevant to independent education. Its table of contents is divided into the categories of Understanding Whole Systems, Shelter and Land Use, Industry and Craft, Communications, Community, Nomadics, Learning. It is indispensible as a tool for procuring current information.

THE YEAR 2000

Herman Kahn and Anthony J. Wiener/MacMillan Co./$9.95

A framework for speculation on the next thirty five years, this book contains most of the basic methology of future study through statements of multi-faceted trends, projections, scenarios. The accuracy of the author's projections cannot be known at this time but their current statistics and fantasies are possibly the most thorough we have at this time.

TWO BLOCKS APART

Charlotte Leon Mayerson/Avon/$.60

The lives of two boys, from New York City, Juan Gonzales and Peter Quinn, are contrasted in this short book that was edited from a series of tapes made during interviews. Although they live only two blocks apart, they don't know each other and are separated culturally by worlds. How they respond to their home, school and neighborhood is very enlightening as we learn how the environment affects them.

ARCHITECTURE: A BOOK OF PROJECTS

Forrest Wilson/Reinhold Book Corp./$6.95

A book of projects helpful in understanding structural principles, classic symmetry, scale and space. Extremely helpful for classroom building and construction projects.